Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

THE MOLE

BY FRANCIS PITT

THOUGH so common the mole is a comparatively unknown animal, by which rather "Irish" statement I mean that most people know little of its ways and habits. This is easily accounted for by its subterranean mode of life, so that to many persons the word "mole" simply means those unsightly hillocks of soil which it throws up during its workings to the annoyance of the farmer and the disfigurement of the turf. It is seldom one sees a mole alive and unhurt, therefore even professional molecatchers know but little about the creatures which it is their business to trap, yet what they do not know they often imagine, and many of their statements should be taken with the proverbial "grain of salt." Even educated people have given credence to and published some curious tales, saying things which the slightest acquaintance with the animal would have shown to be false. I think this is due to the fact that not only is it difficult to catch a mole without hurting it, but also to keep it alive for more than a few hours. Moles succumb quickly in the grip of a trap, and even if found at once and released before they are much pinched will die from the shock and fright. And when you do get one that is not hurt it is no easy task to feed it. I speak from personal experience as I recently had a mole for a month. It was caught in a "gin" that had been set for a stoat. The jaws closed on its foot, but a man was passing the place as the trap went off, and hearing the snap looked to see what was caught. By a lucky coincidence I was near at hand and hearing him shout ran to the spot. It was the work of a moment to take the mole out of the trap, pop the squeaking, scratching thing into one of my gloves, and carry it home as fast as I could. I must here utter a word of warning, if any one reading this should think of trying to keep a mole as a pet, he, or she, had better not, when at last it is caught, be tempted to slip it on the way back into a convenient pocket. Not only is it bad for the pocket to do so, the mole being capable of using its strong claws with great effect, but when you take it out you may find some fleas left behind! Large, active ones too, for mole fleas are generally big, so it is wiser to leave even a glove or pocket handkerchief out of doors for an hour or two after carrying a mole in it.

To go back to my mole, it squeaked shrill protests all the way, and scratched, scraped, and tore at the glove like a little demon. When I got to the house there was the question of its quarters to be considered, but an empty tub with some soil at the bottom solved the problem. At first it dashed frantically round and round, trying to climb out, then it burrowed into the earth, which was about twenty-four inches deep, and by the heaving I judged it was exploring the bottom of the tub. I was rather surprised as it went down to see that it scratched out the loam with its hind feet, first drawing it backwards with its forepaws, then kicking it away with the hind ones just as a rabbit or a dog would do. I say this surprised me because I had always imagined that a mole pushed the earth in front of it by means of its powerful and extraordinarily developed forelegs, head, and shoulders. Possibly it does this too, but evidently it is not the only method.

The next thing to do was to feed my captive, for I knew from past experience that it would want a large number of worms. Moles live chiefly upon worms, but they will eat grubs of all sorts, including slugs, and even meat if they cannot get anything else. Their appetites are extraordinary, no creatures are more voracious, and their digestions are so rapid they soon starve if left for more than a few hours without food. About the same time I had the mole above referred to, a workman, who knew that I wanted a live mole, was turning over some rubbish in a stackyard when one dropped out. He caught the mole and as it was late in the evening put it in a large box, even taking the precaution to fill this with soil, thinking he would bring the little animal to me first thing the following morning, but when he looked at it at 5.30 A.M. it was not only lying dead on the top of the earth, but was stiff and cold, and must have died early in the night. It was absolutely unhurt, and had died simply from starvation. I was very anxious that this fate should not overtake my mole, so I got for its first meal fifty large worms. For a few moments it would not touch them, but continued to race round the barrel, snuffing here and there with its curious little sensitive snout, and every now and then trying to scramble up the sides. It moved astonishingly quickly considering how unsuitable those broad, strong forepaws were for above-ground progression. One of the most amusing of its characteristics was the impudent angle at which it carried its wretched stump of a tail. This twenty millimetres or so of skin and bone was generally carried upright like the tail of a self-satisfied dog! By the way, I have referred to the mole as "it," for I was never sure of its sex, but as it was rather a small specimen I believed it was a female. However, there is so little outward difference between the sexes that it would be easy to be mistaken. It is an interesting point in connexion with the question of sex that among moles males are much more numerous than females. The exact proportion is difficult to arrive at, mole-catchers' statements being most unreliable, the only safe method of determining the sex, except in the breeding season, being by dissection. My mole was rather small and slight, but its fur had the most lovely sheen, giving it in certain lights—though of course it was only a typically coloured "black" mole—the appearance of frosted silver. I have never seen this in dead ones or in "skins," and believe it is due to the ripple and play of the muscles under the velvety fur. For instance, as it seized and shook a worm—for it soon changed its mind and attacked the worms I had dropped in—its fur seemed one moment silver, the next jet black, and a second later silvery grey.

Worm after worm disappeared. It grabbed them like a terrier pouncing upon a rat, bit its victim quickly all along the body, and then began to chew it from the end, almost lying upon the rest of the worm and using its paws to hold it, at the same time getting its head down between its arms so that it was impossible to see how the meal was finished. The fifty worms had disappeared by next morning and the mole was running round the tub apparently looking for more. I gave it thirty for breakfast, and another thirty in the evening, and henceforward made sixty its daily allowance. At first I simply dropped them on the earth, but later always put them in a flower-pot, which I tipped a little to one side, and the mole learnt to fetch them from it as it wanted them. Sometimes the morning supply was not finished by evening, but every worm would be eaten up during the night. It certainly did not eat so much during the day as it did during the dark hours, which evidently accounted for my finding twenty-seven worms left in the soil when I turned the mole out on the evening of the thirtieth day. But in calculating what it had eaten these need not be considered, as the daily "sixty" was usually many more, for I often threw in another ten or twelve to make sure the little animal had good measure. Taking sixty as the figure, which is under rather than over the mark, it had 1800 worms in the thirty days, at which rate one mole would want 21,900 in a year of 365 days, or 91 lb. 4 oz. of worms, if one takes an average lot of sixty to weigh 4 oz. I put several "sixties" on the scales and they all weighed the same. Now an average mole weighs about 3½ oz., so this one not only consumed more than its own weight of food in the space of twenty-four hours, but would in the course of a year have eaten a trifle over 417 times its own weight of worms. And it should not be forgotten that a free mole, taking plenty of exercise, would probably be even more voracious. This gives some idea of the work done by the mole population in the course of a year! I know that I should not like to have to feed several of these voracious little demons! *One* was quite enough. Those sixty worms per day became a perfect nightmare. All likely ground had been dug over, every heap of soil turned several times, worms got more and more scarce, until I was counting the days until I might let it go, but having said I would keep it alive and well for a month I did not mean to be beaten by a few dozen worms.

Before the day came to release my mole I had noted many interesting facts concerning its ways. I gave it some grass for a bed, which it at once gathered together, and in a little while I found it asleep on the heap (which was on the *top* of the soil) looking like a little grey velvet ball, for its head and feet were tucked away beneath it. When I touched it it squeaked, turned on its back and *kicked*, but did not bite, then got up and ran away down one of the tunnels it had made. This happened on the first day, the next day it had arranged the dried grass so that it had a comfortable nest, which was slightly sunk in the ground by reason of a bolt-hole that had been dug beneath. The whole time it used the nest it kept this hole open, and a similar tunnel is an invariable feature of the elaborate "fortress" or "palace" that a mole lives in during the winter. It was apparently the repeated excavations of this bottom hole which caused the bed to be gradually sunk in the ground and covered up so that at last only a few stray bits of hay marked its position. Besides the top and bottom tunnels there were at least two other holes leading into it. This nest was added to from time to time, the hay I supplied being dragged in, and I once saw the mole engaged on the task. It just caught hold of the bits and pulled them towards it. From what I could see it appeared that it arranged its bed by pulling the stuff towards it, and then turning round and round. It was certainly a most comfortable bed, and the feeling when my finger sank into the warm velvety fur of the mole was quite delightful! After the first day it gave up squeaking when touched, but invariably rolled over and kicked, and if this did not stop the annoyance got up and ran away. The mole was not very frightened and would hang on to a worm like a little bulldog, so that one day I raised it twelve inches in the air before the worm parted and it was able to scurry home to the nest with half. I noticed that it often took worms home to the nest to eat, and I thought that it liked to get under the hay so that in their squirmings they should not soil its beautiful fur which it kept so spotlessly clean. It was astonishing how quickly it located the worms when I dropped them on the surface of the soil, sniffing here and there with its keen little nose and soon finding them. Though bold enough where food was concerned it was easily startled by anybody passing and would immediately dive underground. How far it was frightened by sounds I could not decide, and could never tell whether it was the shaking and vibration caused by approaching footsteps, or the noisy crunching that they made on the gravel which alarmed it, but somehow or other it knew when any one came near.

After the first ten days the mole—having settled down and become thoroughly at home—no longer came up on to the surface by day, though there were plenty of indications of its activity at night. From this time onwards it seemed to sleep while it was light and hunt during the dark hours, for I generally found it in the nest in the daytime, and the worms were often untouched until evening, though they all vanished before the following morning.

It is a doubtful point what use the mole is able to make of its tiny eyes. My own opinion, derived from observations on this and other captive moles, is that it can distinguish light from darkness, but does not, in our sense of the word, *see* things, but that sometimes a dark object, such as a person, passing between it and the light, would be sufficient to frighten it.

When the thirty days were up—and worms had become as scarce as "snow in midsummer"—I turned the tub on its side, upset that nice little nest, picked up the mole, which uttered protesting squeaks, and carried it off to a damp meadow near a wood, where I put it down in the long grass, and it slipped away among the stems to be lost to sight in a few seconds. It then looked as well and glossy as when it was caught, and as far as I could see might have lived for months in its tub. In short I was convinced that there is no difficulty in keeping a mole well and healthy if it is given unlimited food, a warm bed, and some water to drink.

Material for making a nest I believe to be most essential to the welfare of a mole. Wild moles make elaborate sleeping-places over which they throw up so much earth that they can be recognized—from afar. These large hillocks, generally spoken of as "fortresses" or "palaces," are principally for winter use. It is most interesting to dig one open. No two agree in the details of their structure, though according to many old naturalists all are made according to one pattern in which the central nest is surrounded with two galleries connected by five tunnels. More often than not a passage does go all round the hillock, from which others pass through the mound and into the sleeping-chamber. The only constant feature I have been able to find in the fortresses of this neighbourhood is the bolt-hole or drain-passage (it probably serves both purposes in this wet clay soil) that passes from the floor of the nest down into the ground, ultimately curving up to join one of the main thoroughfares that lead to the hunting-grounds. This tunnel is usually present in the newest as well as the oldest of fortresses. Some of these old hills are quite large. The biggest I have opened was five feet across by two feet high; another which I had known of for several years was four feet broad by fifteen inches in height; and a third, about two feet three inches high, was three feet six inches across at the widest part. Many hills, especially those under bushes which do not get knocked about by horses and cattle, are used year after year, and the first of those mentioned above had been in use for at least four seasons. When I opened it there was a nice fresh nest of hawthorn leaves evidently brought from beneath a bush that was near. When a fortress has been used for a season or two you may sometimes find one or more new nests made above the old one, and I have heard of several being found in one hillock, though two are the most that I can vouch for from personal observation. As a rule the beds are made of oak leaves—the oak is much the commonest tree in this district—but I have seen elm leaves used, also hawthorn, and grass when no leaves were to be had. A nest in a field of autumn-sown wheat was made entirely of the young blades.

The fortress is not necessarily placed in the middle of the mole's hunting-ground but may be at one end of the system of tunnels, or even some way from the workings with which it will communicate by a well-used tunnel. It is a curious fact, which I have verified for myself, that it is often possible to tell from the straightness or irregularity of the boring whether they are tenanted by a male or female. The males make very much straighter runs than the females. A male's run will go right across a field, with little side passages which are the actual feeding-grounds, the long straight path being the main highway to different parts of the domain. The workings of a female are usually roughly circular but so confused it is difficult to make out much system in them. To study these details to the best advantage moles should not be too plentiful, as where they are very numerous a whole field will be so closely covered with the hillocks that it is impossible to distinguish one set of workings from another. Mole-catchers say that if two moles meet in a passage they fight to the death. I know they will do so in captivity, and that under such circumstances they are the most pugnacious of creatures, fighting with the fury of lions, and continuing until one or the other is killed, but they must in a free state be able to manage their affairs more amiably, as it is no uncommon thing for seven or eight to be caught in the one hole, and it is certain that it is the rule rather than the exception for several to inhabit the same system of tunnels. The greatest number I have known to be taken in the same place was eighteen males captured in the early spring—March and April—where a tunnel went through a fence, but this would be just the time when they would be travelling in search of mates. When thus engaged they will make quite shallow runs which almost break through the surface of the soil.

The young are born chiefly in May and June, the nurseries being specially prepared nests, and not the old fortresses that have done duty all winter. They are strange, helpless, little naked things, reddish at first, but they grow rapidly, become lead-coloured, then acquire fur, and are soon able to follow the old one out into the subterranean world.

Possibly some of the males use their old homes on into the summer, but as a general rule the fortresses are deserted until the following autumn, the owners sleeping where convenience dictates. Quite recently I found a number of sleeping-places under cocks of hay. The weather had been very wet, and it was impossible to carry the hay which had been left in the meadow for over three weeks. At length it became fine, and the order was to open the cocks so that the hay might have a chance to dry. With this work I helped, and became very interested when I saw that beneath each heap of damp hay there were mole tunnels, and that in many cocks nice little round beds had been made. In most instances the occupiers were quick to take the alarm and had disappeared by the time the hay was turned over, but one mole, less nimble than its fellows, was thrown over in the heap, only to be dispatched by a waiting dog.

Moles have few foes save man. Weasels are often found in their burrows and killed by mole-catchers when trapping, but it is doubtful if they are there after the moles. I do not mean to say they never kill a mole, for it is almost certain they do kill a few, but it is very doubtful if they habitually hunt the moles, as so few creatures like them, and all the carnivorous animals and birds that I have offered moles to have refused them unless very hungry. They have rather a strong smell (which is particularly noticeable when you skin a mole), and this may help to make them distasteful. I think more often than not the weasels which are caught in mole-traps were underground after the mice and voles, which also make use of these convenient tunnels. Owls and buzzards may kill a few moles when they venture above ground, and foxes will sometimes pounce on one when burrowing near the surface. One snowy winter day I found clearly written in the snow the tale of such an incident. I had been following the trail of a fox, noting here how he had trotted hurriedly along, there how he had turned aside to smell something, when I came to a spot where he suddenly stopped. The clear impressions of the pads showed how he had stood and watched some creature. The next two or three paces showed he had moved cautiously forward in the direction of some fresh mole-hills which were dark and red against the clean white snow. Then there was a space without a track, and beyond, by the last heap of soil, in the centre of a ring of crushed, trampled, stained snow, lay the mangled body of a mole. It was evident that the fox had seen it heaving near the surface, had sprung upon it, killed it, but was not hungry enough to eat a creature for which he had no great liking, so, after playing with and rolling on it, had left his victim and gone on to seek a more appetizing supper. Poor "little gentleman in the black velvet coat," he paid dearly for venturing so near the surface!

By the way, "black velvet" is not invariably the mole's garb, it is not uncommon for other colours to be met with, such as grey, smoky blue—like a Persian cat—orange, buff, and creamy white. White specimens are occasionally true albinos but more often have dark eyes. Piebalds have been heard of but are very rare. This variability is not astonishing, as it is a feature one would expect to meet with in a creature leading a subterranean life where colour cannot be of any consequence, and where—as far

as we can see—there cannot be any selection in this direction. But selection and specialization have certainly been at work in other ways upon the mole, for no animal could be better adapted to its mode of life, from the enormously and peculiarly developed forelimbs, with the short strong neck and flattened head, to its little sensitive snout and minute eyes, which, buried in its fur, are safe from any inconvenience from grit and falling soil. In short the mole is well fitted to lead a very joyous life in its underground world.
—*The National Review, London.*

SHEILA

By Theodosia Garrison

Kate had the grand eyes, and Delia had a way with her,
And Mary had the saint's face, and Maggie's waist was neat,
But Sheila had the merry heart that travelled all the day with her,
And put the laughing on her lips and dancing in her feet.

I've met with martyrs in my time, and faith, they make the best of it,
But 'tis the uncomplaining ones that wear a sorrow long.
'Twas Sheila had the better way, and that's to make a jest of it,
To call her trouble out to dance and step it with a song.

Eh, but Sheila had the laugh the like of drink to weary ones.
(I've never heard the best of it for all I've wandered wide.)
And out of all the girls I know—the tender ones—the dreary ones—
'Twas only Sheila and the laugh that broke her heart and died.

—*Cassell's Magazine of Fiction, London.*